ENHANCING MONTANA'S ENERGY RESOURCES: RESEARCH IN SUPPORT OF THE STATE OF MT ENERGY POLICY GOALS

Award Amount: $1.2M

Principal Investigator: Dr. Lee Spangler, Director, Energy Research Institute at Montana State University

Research Need:

- Montana contains vast reserves of coal and oil & gas, but regulations can limit fossil fuel options
  - Montana contains 25% of the nation's coal reserves (6% of the world's reserves)
- This proposal is a joint effort of MSU and MT Tech to develop technologies that address current and pending regulatory hurdles in the energy sector

Primary Objectives:

1. Well sealing technology: Develop technologies to sea small aperture leaks in wells
   a. Proposal will fund efforts to develop new enzymatic and thermal mineralization precipitation technologies capable of sealing leakage under greater pressure and temperature, allowing use at deeper depths
2. Clean coal technologies:
   a. Investigate mineral precipitation stabilization of fly ash (help Colstrip comply with federal regulations that prevent leakage of contaminants from coal storage ponds by cementing together fly ash)
   b. Assess air capture of CO2 for algae growth for value added byproducts
   c. Evaluate co-firing potential of coal with biomass
   d. Investigate use of potential coal related byproducts to enhance oil and gas recovery

Collaborations/Research Team:

Montana State University

Energy Research Institute

Civil Engineering

Center for Biofilm Engineering

Thermal Biology Institute

Microbiology & Immunology

Montana Tech

Department of Biological Sciences

Geophysical Engineering